Project Baseline Summary Report

Data Source: **EM CDB**

Report Number: **GEN-01b**

Operations/Field Office: **Rocky Flats**

Print Date: **3/9/2000**

Site Summary Level: **Rocky Flats Environmental Technology Site**

HQ ID: **0375**

Project **RF027 / Analytical Services Project**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose: Analytical Services provides sampling and analytical chemistry services in support of Rocky Flats Environmental Technology Site (RFETS) and other DOE facilities. Analytical Services satisfies the requirements of federal, state, and local agencies for characterization of environmental contamination, facility waste, environmental monitoring, industrial hygiene, radiological health, medical monitoring, nuclear material processing and stabilization, and nuclear material control accountability. Analytical services are provided to onsite projects requiring analyses until site closure through the use of a combination of onsite and offsite laboratories.

Scope: This PBS covers the management and integration of all analytical services required by the projects/programs at the RFETS until site closure. The quantative work scope is outlined in a confiquration controlled spreadsheet which is maintained by the manager of Analytical Services. This work scope is managed under WAD 041 and is organized into five areas in FY99 and outyears:

Laboratory Management and Integration -
Manage and track all samples collected onsite, coordinates analytical support requirements of onsite projects to ensure project needs are met while maintaining quality standards for analysis and reporting. This satisfies the requirement of DOE-HQ for establishing a single field sample management program for RFETS. Provides oversight and control of all onsite and offsite laboratories in order to define the requirements of laboratory performance and to monitor and report progress in meeting mission goals of projects requiring analytical services.

Onsite Commercial Laboratories -
Provides analytical services for radiochemistry results to customers in a timely manner with quantitative results that meet project needs. These services are directed to the mobile commercial lab because they either cannot be performed by an offsite commercial laboratory or are not cost productive to send to an offsite commercial laboratory.

Onsite Radiological Laboratories -
Provide analytical services for radiochemistry, volatile organics, semi-volatile organics, PCB's, inorganics, waste characteristics, industrial hygiene, and calorimetry/gamma spectroscopy results within a radioactive or contaminated environment that would preclude the sample from being shipped offsite to a commercial laboratory or to the onsite commercial laboratory.

Offsite Commercial Laboratories -
Provides analytical services for organic, inorganic, radiochemistry, bioassay, water quality, industrial hygiene, and general chemistry results to customers in a timely manner with quantitative results that meet project needs.

Sample Team Operations -
Performs sampling activities for onsite projects which require sample analysis.
Included in this area is packaging and transportation of samples to the onsite and offsite labs.

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Project **RF027 / Analytical Services Project**

Project Description Narratives

Analytical Services fiscal year work scope and cost estimates are developed based upon the historical and projected requests for sampling and analysis needs of sitewide projects/programs.

Technical Approach:
The strategy for providing the management and integration of all analytical services required by the projects/programs at the RFETS includes:
- Work in conjunction with the customer to develop sampling and analysis plans, data quality objectives, and defining the analyses to be requested.
- Determine the laboratory destination (onsite or offsite laboratory and which particular laboratory) and rad screen requirements.
- Track analytical services through the Analytical Services Tracking (AST) System, includes generating a report identification number (RIN), sample number, and chain of custody.
- Collection of the required samples by the sample team, package samples and transport to the appropriate laboratory based on rad screen results.
- Laboratory performs required analyses and submits a complete hard copy data package and Electronic Data Deliverable (EDD) of analytical results.
- Analytical Services performs a completeness check to verify all the requested analyses have been received as well as a review and verification of the data package.
- The completed data package is delivered to records storage and copy of data results delivered to customer if required.
- Analytical Services will maintain all hard copy data packages for two fiscal years in accordance with the NQA-1 requirements. Older records are submitted for microfilming and transmittal to permanent storage as required by federal and state laws and regulations or DOE orders.

Analytical Services maintains oversight of the onsite commercial laboratory and directs which analyses are to be performed by this laboratory. This determination is based on technical expertise in performing the analysis, laboratory compliance with federal regulations and contractual requirements in the area of quality, safety, and accountability, and the cost competitiveness of the laboratory.

The onsite commercial laboratory will perform analyses on a variety of matrices including air, soil, water, and solids. Normal turnaround time for an analysis is within 30 days, but high priority analyses (customer quick turnaround time) and critical analytical results (inhalations) can be accommodated within 24 hours or less. The program needs in conjunction with laboratory capacity and distance from RFETS will dictate how quickly analytical results can be obtained.

Analytical Services requires onsite commercial laboratory capacity for analyses that do not require handling by the onsite radiological laboratories (Building 559) due to low radioactivity levels, but, cannot be handled by offsite commercial laboratories. This capacity is needed for the following reasons;
1) Analyses that are to be sent to an offsite laboratory require a screen for radioactivity levels to ensure that Department of Transportation packaging

Project Description Narratives

and shipping requirements are met.
2) Analyses for gross alpha/beta in room air samples require special instrumentation not available at offsite commercial laboratories. It is not economically feasible for offsite commercial laboratories to purchase this instrumentation due to lack of customers outside of the DOE complex.
3) Certain analyses for gross alpha/beta content require a turnaround time of 4 hours for results, which precludes the transport of these sample to an offsite commercial laboratory for analysis.

The quantity of analyses to be performed by the offsite commercial laboratories is based on projections supplied by project customers. Each project was requested to provide the number and type of analyses required to be performed. The quantities are used to ensure that adequate offsite commercial laboratory capacity is available to support each project's analytical requirements. The quantity of analyses to be sent to offsite commercial labs and the associated costs are planned and budgeted by the requesting project/program.

The cost to perform the analyses listed above is based on negotiated contracts with Thermo NuTech. These costs are a fixed unit price per analysis and include all costs associated with completion of analyses including direct and indirect costs associated with all tasks required to perform the analysis, fee/profit, hard copy data results, electronic deliverable data results, shipping cooler return, sample disposal, all quality control samples, method blanks, spikes, and duplicates.

The design and procurement activities for the new modular radiological laboratory will begin in FY00 in order to support and prepare for the d&d of building 559. FY01 activities will include finalizing the procurement and beginning construction. Construction of the modular lab will be completed in the spring of 2002. Beginning April 1, 02, the new modular radiological laboratory will begin performing analyses in tandem with building 559. This transition from Building 559 to the new modular radiological laboratory will continue until September 30, 02 at which time Building 559 will no longer perform analyses.

The new modular radiological laboratory will require the following new services upon completion of construction: Water, Sewer, Electric, Phone, Computer Network services.

The sample team operations are managed by Analytical Services. The quantity of sampling events and the associated costs are planned and budgeted by the requesting project/program. This would also include the cost of packaging and transporting the samples to the appropriate analytical lab. Sampling activities include presample walkdowns, sample vial preparation, equipment calibration, sample acquisition, and sample transportation.

The sample team training includes qualifying in sampling protocol, trained in the use of self-contained breathing apparatus and certified as a nuclear materials transporter.

Sample team operations was outsourced to Commodore Advanced Sciences Inc. (CASI) in FY98. The cost to perform the sample events as well as the costs for packaging and transportation of all samples is based on negotiated contracts with CASI. These costs are a fixed unit price per sampling event and analysis and include all costs associated with completion of the sampling event or analysis including direct and indirect costs associated with all tasks required to perform the sampling event or analysis, fee/profit, hard copy data results, electronic deliverable data results, sampling instrumentation, etc.

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Project **RF027 / Analytical Services Project**

Project Description Narratives

Project Status in FY 2006:

All work scope will be complete with the exception of analytical laboratory services to support ongoing air and water monitoring activities (RF001 and RF030) and decommissioning activities (RF014).

Post-2006 Project Scope:

Post 2006 scope will consist of providing analytical laboratory services to support ongoing air and water monitoring activities (RF001 and RF030) and decommissioning activities (RF014).

Project End State

Analytical Services for the Closure Project will end with the completion of the Closure Cap Projects in FY06. Any analytical services required for long term monitoring activities beyond this date will be acquired from commercial laboratories.

Cost Baseline Comments:

Cost estimates are based on assumptions and data developed by the technical groups that have responsibility for managing the work. To the extent practical, all cost estimates are Activity-Based Costs (ABC) and tied directly to a defined and detailed work scope. The estimates are developed at the activity level and are further divided into line items. Line items represent individual resource contributions to activities and are the lowest level of input to the planning system. Once the cost estimate is developed,
each activity is evaluated for cost, technical and schedule risk and the appropriate contingency is determined. Detailed estimates and the basis of estimates (BOEs) for the 2006 Closure Plan are available at the Site.

Safety & Health Hazards:

The following are the principle hazards which may be present during the performance of Analytical Services work scope: radiological, chemical, and other standard industrial hazards. Most of these hazards will exist throughout the project and are related to management and operation of analytical laboratories which provide the following services: characterization of environmental contamination, facility waste, environmental monitoring, industrial hygiene, radiological health, medical monitoring, nuclear material processing/stabilization, nuclear material control/accountability, and facility D&D. These hazards will be analyzed and categorized in accordance with the RFETS Safety and Health Program infrastructure policies, manuals, and procedures.

Safety & Health Work Performance:

All analytical services will be performed within the RFETS Safety and Health Program and within the controls and authorization basis documents defined above to ensure the safety and health of the worker, public and the environment. RFETS has implemented an integrated safety management system through the Integrated Work Control Program (IWCP). The IWCP includes the following elements: radiological safety, criticality safety, emergency management, fire safety, industrial hygiene, nuclear safety, occupational medicine, occupational safety, safeguards and security, safety integration, performance oversight, and standards management. RFETS provides site wide infrastructure programs for each functional area to establish consistent safety standards and support for Analytical Services. Safety and health success results from the efficient and effective implementation of these programs. Analytical Services is responsible for ensuring that the necessary elements of the safety and health programs are incorporated into the specific project plans and implementing documents, and that an appropriate Readiness Determination and Safety Evaluation

Project Baseline Summary Report

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Project **RF027 / Analytical Services Project**

Project Description Narratives

Screen (SES)/Unreviewed Safety Question Determination (USQD) have been performed.

PBS Comments:

The Analytical Services Project provides analytical support critical to project and sitewide mission completion. The projects listed in Section A.1.2 (Definition of Scope) will require analytical support through the life of the project. This support is necessary to characterize hazardous and/or contaminated media prior to the particular activity being performed. As such, the analysis and characterization represent a critical path to meeting defined schedules within each project. Analytical Services` goal is to provide the necessary analytical results within the time requirements established by the customer at minimal cost.

Baseline Validation Narrative:

Although the 2006 Closure Plan has not been officially validated, it has undergone a high level review by Rocky Flats Field Office (RFFO) and Headquarter personnel. Current independent validation efforts include the following: 1) RFFO has contracted an independent firm to perform a baseline confidence review of the 2006 Closure Plan by the end of FY99, and 2) the Office of Field Management (FM) has contracted a big-five accounting firm to validate the 2006 Closure Plan.

In addition to the 2006 Closure Plan validation efforts, results/recommendations from several previous baseline validation efforts were used in the development of the 2006 Closure Plan. These validations included: 1) The U.S. Army Corps of Engineers (USACE) performed a validation of the Rocky Flats Ten Year Plan in FY97/FY98, 2) Kaiser-Hill contracted Price Waterhouse Coopers, LLP to conduct and independent validation effort of the 2010 Closure Project Baseline that concluded in May of FY99, and 3) Kaiser-Hill engaged Arthur Andersen, LLP to conduct a schedule and cost risk review of the 2010 Closure Project Baseline.

General PBS Information

Project Validated? **Date Validated:**

Has Headquarters reviewed and approved project? No

Date Project was Added: 12/1/1997

Baseline Submission Date:

FEDPLAN Project? Yes

Drivers:

CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
Y	Y	Y	N	N	Y	Y	Y

Project Identification Information

DOE Project Manager: Jessie Roberson

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HQ ID: **0375**

Project **RF027 / Analytical Services Project**

General PBS Information

DOE Project Manager Phone Number: 303-966-2263

DOE Project Manager Fax Number: 303-966-4775

DOE Project Manager e-mail address: ten.year.plan@rfets.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	79,996	417	80,413	14,683	14,683	7,924	7,924	7,669	7,599	10,541	10,147	9,217	6,498	3,124	2,594
PBS Baseline (constant 1999 dollars)	76,432	351	76,783	14,683	14,683	7,924	7,924	7,669	7,399	10,053	9,478	8,432	5,822	2,742	2,230
PBS EM Baseline (current year dollars)	79,996	417	80,413	14,683	14,683	7,924	7,924	7,669	7,599	10,541	10,147	9,217	6,498	3,124	2,594
PBS EM Baseline (constant 1999 dollars)	76,432	351	76,783	14,683	14,683	7,924	7,924	7,669	7,399	10,053	9,478	8,432	5,822	2,742	2,230

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Project **RF027 / Analytical Services Project**

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS EM Baseline (constant 1999 dollars)	351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2010

Current Projected End Date of Project: 9/29/2006

Explanation of Project Completion Date Difference (if applicable):

Scope Deletion

Efficiencies

New Scope

Cost Growth

Science & Technology

Other

The scope of work and end state conditions for the 2006 Plan are similar to the current 2010 Baseline, with a four-year acceleration and a reduction in cost being the two most significant differences. The bottom-up

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Project **RF027 / Analytical Services Project**

Project Reconciliation

estimate for the 2006 Plan is a $1.65 billion improvement over the comparable activity-based bottoms-up detail estimate for 2010.

To close the Site four years earlier than the current 2010 Baseline requires a strategically different approach. The two key principles followed in preparing the 2006 Baseline were: 1) safely reducing the urgent risks first, and 2) performing work in a sequence that reduces or eliminates operations, maintenance and security costs (often referred to as - mortgage costs) as early as possible. Key to the 2006 Baseline approach is early closure of the secured Protected Area. Closing the Protected Area as soon as possible means that the high security and maintenance costs for this area can be redeployed to accelerate other closure activities. In addition, D&D and SNM risk reduction activities will be performed simultaneously rather than sequentially, supporting both the risk reduction and mortgage reduction principles. The D&D of non- and lower-contaminated facilities and most environmental remediation work will be deferred until later in the project to allow resources to be focused in the areas that result in the greatest reduction in risks and mortgage costs.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	74,101	**Actual 1997 Cost:**	14,683	**Actual 1998 Cost:**	7,924
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	51,494	**Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):**			1,390
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	52,884				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	2,969	Rebaselining due to acceleration. New scope dollar estimate is not of audit quality.
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	55,853	
Additional Amount to Reconcile (+):	-1,677	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**54,176**	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
PBD027 Project Start			10/1/1997								

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Project **RF027 / Analytical Services Project**

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Complete PBD 027 - Analytical Services Project	RF-OTHE-27		9/29/2006							Y	

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
PBD027 Project Start				Y							PBD027 Project Start
Complete PBD 027 - Analytical Services Project	RF-OTHE-27				Y	Y					Kaiser Hill Internal (KHIs) Milestones

Technology Needs

Site Need Code: RF-DD15

Site Need Name: Real-Time Beryllium Surface Characterization

Focus Area Work Package ID: DD-13

Focus Area Work Package: Oversized Metallic TRU Waste Disposition

Focus Area: DDFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

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Project **RF027 / Analytical Services Project**

Technology Needs

Related CCP Milestones	Related Waste Streams	Agree?	Change?
	01385: ER-04 - D&D Waste (HAZ, LLW, MLLW, TRU/MTRU, Uncontam)	Y	N
	01388: ER-04C - Sorted D&D TRU	Y	N
	01389: ER-04D - Sorted D&D Uncontaminated to Disposal	Y	N
	01387: ER-04B - Sorted D&D LLM	Y	N
	01386: ER-04A - Sorted D&D LLW	Y	N
	01390: ER-04E - Sorted D&D HAZ to Disposal	Y	N
	01391: ER-04F - Sorted D&D to On Site Placement	Y	N

Site Need Code: RF-DD16

Site Need Name: Real-Time Beryllium Air Monitoring

Focus Area Work Package ID: DD-13 **Focus Area Work Package:** Oversized Metallic TRU Waste Disposition

Focus Area: DDFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both):

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

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Project **RF027 / Analytical Services Project**

Technology Needs

Related CCP Milestones

Related Waste Streams	Agree?	Change?
01385: ER-04 - D&D Waste (HAZ, LLW, MLLW, TRU/MTRU, Uncontam)	Y	N
01388: ER-04C - Sorted D&D TRU	Y	N
01389: ER-04D - Sorted D&D Uncontaminated to Disposal	Y	N
01387: ER-04B - Sorted D&D LLM	Y	N
01386: ER-04A - Sorted D&D LLW	Y	N
01390: ER-04E - Sorted D&D HAZ to Disposal	Y	N
01391: ER-04F - Sorted D&D to On Site Placement	Y	N